

CATHODE MATERIAL FOR LITHIUM RECHARGEABLE BATTERIES

ABSTRACT OF THE DISCLOSURE

A crystal which can be employed as the active material of a lithium-based battery has an empirical formula of $\text{Li}_{x1}\text{A}_2\text{Ni}_{1-y-z}\text{Co}_y\text{B}_z\text{O}_a$, wherein "x1" is greater than
 5 about 0.1 and equal to or less than about 1.3, "x2," "y" and "z" each is greater than about 0.0 and equal to or less than about 0.2, "a" is greater than about 1.5 and less than about 2.1, "A" is at least one element selected from the group consisting of barium, magnesium, calcium and strontium and "B" is at least one element selected from the group consisting of boron, aluminum, gallium, manganese, titanium, vanadium and
 10 zirconium. A method includes combining lithium, nickel, cobalt and at least one element "A" selected from the group consisting of barium, magnesium, calcium and strontium, has at least one element "B" selected from the group consisting of boron, aluminum, gallium, manganese, titanium, vanadium and zirconium, in the presence of oxygen, wherein the combined components have the relative ratio of $\text{Li}_{x1}:\text{A}_{x2}:\text{Ni}_{1-y-}$
 15 $z:\text{Co}_y:\text{B}_z$, wherein "x1," "x2," "y" and "z" have the values given for the empirical formula shown above.